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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/516,463

04/21/2005

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EXAMINER

RONESI, VICKEY M

ART UNIT

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1796

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/516,463	Applicant(s) NAKAYAMA ET AL.	
	Examiner VICKY RONESI	Art Unit 1796	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-12 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. ____. |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>12/3/2004</u> . | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Information Disclosure Statement

1. The Japanese references cited on the IDS filed on 12/3/2004 were not provided in the application and have therefore been struck from the IDS. These references have been cited on PTO-892 and copies are attached herein.

Claim Objections

2. Claims 1 and 3 are objected to because “z” is defined in the claims, however, the character “z” does not appear in any of formulae (I)-(IV). Appropriate correction is required.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1, 3, and 7-10 are rejected under 35 U.S.C. 102(b) as being anticipated by Scholl et al (US 5,663,226, cited on IDS dated 12/3/2004).

Scholl et al discloses rubber mixtures for use in tires (abstract) comprising rubber such as natural rubber (i.e., diene rubber) (col. 5, lines 39-59); 0.1-10 wt % reinforcing additives of the

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formula $(\text{RO})_3\text{SiCH}_2\text{CH}_2\text{CH}_2-(\text{S}_x-\text{CH}_2\text{CH}_2)_n-\text{S}_x-\text{CH}_2\text{CH}_2\text{CH}_2\text{Si}(\text{OR})_3$ (col. 2, lines 21-30); and 0-150 wt % filler such as silica having a BET surface area of preferably 20-400 m^2/g (col. 4, lines 44-67). Scholl et al exemplifies three rubber compositions with SBR rubber, 50 phr silica, and 3.5 phr reinforcing additives having a structure of $(\text{EtO})_3\text{SiCH}_2\text{CH}_2\text{CH}_2-\text{S}_4-\text{CH}_2\text{CH}_2\text{CH}_2\text{CH}_2-\text{S}_4-\text{CH}_2\text{CH}_2\text{CH}_2\text{Si}(\text{OEt})_3$ and $(\text{EtO})_3\text{SiCH}_2\text{CH}_2\text{CH}_2-\text{S}_4-\text{CH}_2\text{CH}_2\text{CH}_2\text{CH}_2-\text{S}_4-\text{CH}_2\text{CH}_2\text{CH}_2\text{Si}(\text{OEt})_3$ (Examples A and B in col. 8 Table).

These two last compounds read on the instantly claimed formula (I) with R^4 represented by formula (II) (i.e., $\text{R}^1 = \text{ethyl}$, $\text{R}^3 = \text{propylene}$, $p = 0$, $m = 3$, and $\text{R}^5 = \text{butylene or hexylene}$). Note that $m = 3$ because the fourth sulfur in the polysulfide group is included in formula (II).

With respect to claim 3, given that formulae (III) and (IV) are in alternative embodiments to formulae (II), the claim stands rejected.

In light of the above, it is clear that Scholl et al anticipates the presently cited claims.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Scholl et al (US 5,663,226, cited on IDS dated 12/3/2004).

Scholl et al discloses rubber mixtures for use in tires (abstract) comprising rubber such as natural rubber (i.e., diene rubber) (col. 5, lines 39-59); 0.1-10 wt % reinforcing additives of the formula $(\text{RO})_3\text{SiCH}_2\text{CH}_2\text{CH}_2-(\text{S}_x-\text{CH}_2\text{CH}_2)_n-\text{S}_x-\text{CH}_2\text{CH}_2\text{CH}_2\text{Si}(\text{OR})_3$ wherein $x = 1-6$

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and $n = 1-10$ (col. 2, lines 21-30); and 0-150 wt % filler such as silica having a BET surface area of preferably 20-400 m^2/g (col. 4, lines 44-67).

Scholl et al fails (i) to anticipate a reinforcing additive having the presently claimed formulae (III) or (IV), (ii) to anticipate a reinforcing additive of formula (I) and formula (IV) having hexylene groups (claim 5); (iii) to disclose the purity of the reinforcing additive (claim 6); and (iv) to disclose a tire tread (claim 11).

With respect to (i), regarding formula (III), the formula taught by Scholl et al reads on it when $x = 1-3$ and $n = 2$. Regarding formula (IV), the formula taught by Scholl et al reads on it when $x = 1-3$ and $n = 3$.

Given that some of the embodiments taught of the formula taught by Scholl et al reads on the instantly claimed formulae (III) and (IV), it would have been obvious to one of ordinary skill in the art at the invention to prepare a rubber composition comprising a reinforcing additive like taught by Scholl et al, absent evidence of unexpected or surprising results that is reasonably commensurate in scope with the scope of the claims.

With respect to (ii), the cited Scholl et al formula above does include hexylene groups, however, note Scholl et al's formula (I) in col. 1, line 43 which shows that the alkylene groups in the formula can be X^1 and X^2 groups can be C_1-C_{12} alkyl and that Y can be C_1-C_{18} alkyl. Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to utilize hexylene groups in the reinforcing additive formula given that Scholl et al teaches such.

With respect to (iii), Scholl et al teaches that the reinforcing is vacuum filtered after being prepared (col. 7, lines 19-20). Given that Scholl et al teaches a purification step, it would have been obvious to one of ordinary skill in the art to prepare a reinforcing additive having the presently claimed purity.

With respect to (iv), Scholl et al teaches that its composition is used in tires and that the composition has excellent abrasion and skid resistance (abstract). Given that School et al teaches the use of the composition in tires and further given the excellent abrasion and skin resistance properties (i.e., properties very useful in forming a tire tread which has contact with the ground), it would have been obvious to one of ordinary skill in the art at the time of invention to use the composition taught by Scholl et al in a tire tread.

Conclusion

5. The “X” references cited on the International Search Report for PCT/JP03/07265 have been considered but have not been used in the above rejections for the following reasons:

- JP 2002-308887 and JP 62-67092 are cumulative to the disclosure of Scholl et al.
- Scholl et al is the English-language equivalent of JP 7-258474.

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Vickey Ronesi whose telephone number is (571) 272-2701. The examiner can normally be reached on Monday - Friday, 8:30 a.m. - 5:00 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vasu Jagannathan can be reached on (571) 272-1119. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR

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system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

3/17/2008

vr

/Vickey Ronesi/
Examiner, Art Unit 1796